3GPP SA6 EDGEAPP

Architecture for enabling Edge Applications

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Outline

- Introduction to 3GPP SA6
- Overview of 3GPP EDGEAPP (3GPP TS 23.558)
- Industry harmonization
  - ETSI (ISG) MEC
  - GSMA OPG
- Conclusion

Introduction to 3GPP SA6

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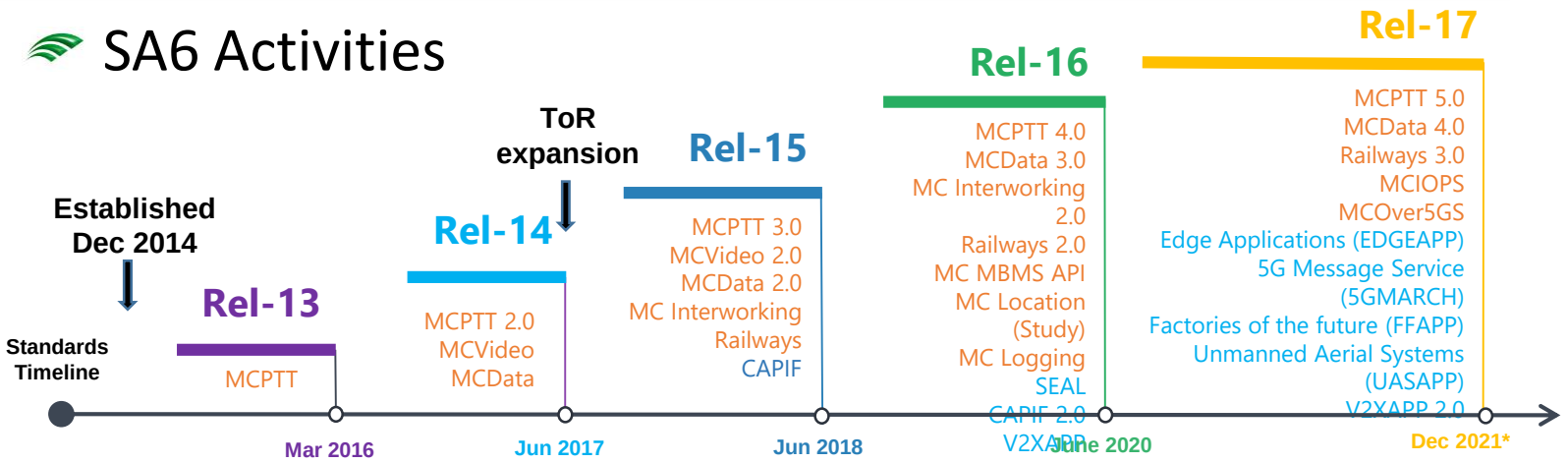
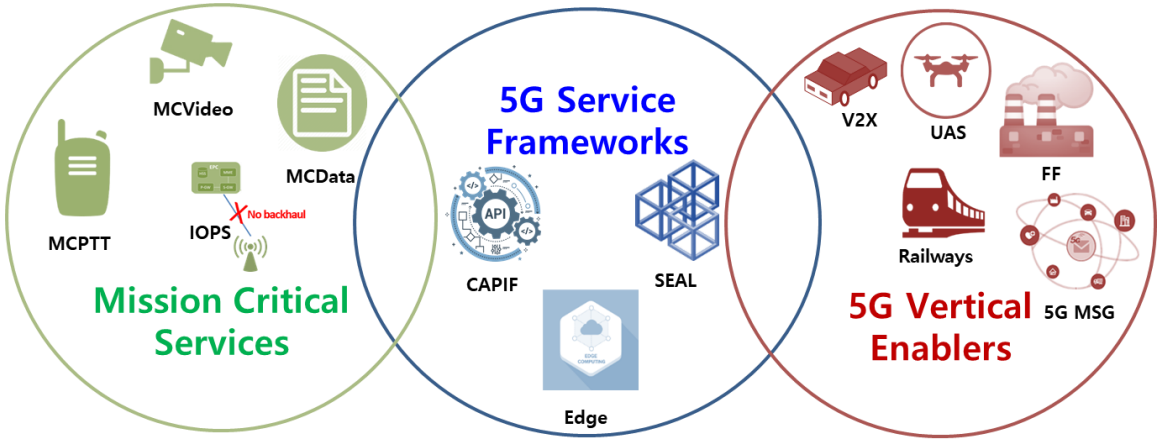
SA6 Activities

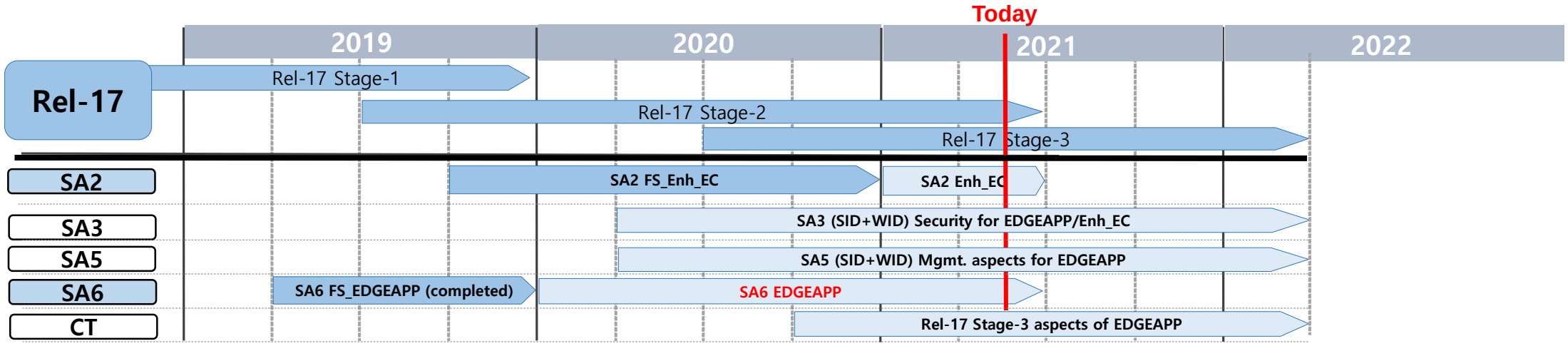




3GPP SA6 Participation

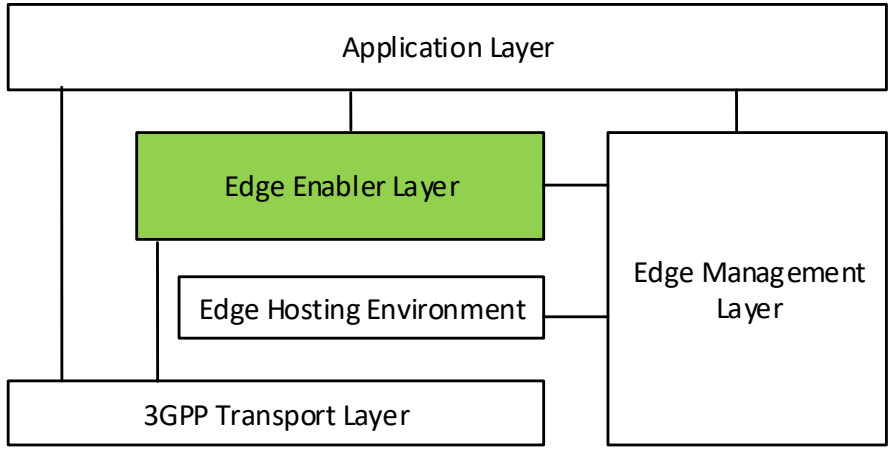
3GPP Edge Computing

- Edge Computing is a major focus area in 3GPP Rel-17
  - **SA6**: Application layer architecture, and deployment scenarios (FS_EDGEAPP, EDGEAPP)
  - **SA2**: System Architecture enhancement for supporting Edge Computing (enh_EC, eEDGE_5GC)
  - **SA3**: Security aspects for supporting SA2 eEDGE_5GC and SA6 EDGEAPP (FS_eEDGE_Se)
  - **SA5**: Management aspects on Edge Computing (FS_Eedge_Mgt)
- 3GPP Rel-17 Timeline



Edge Application Enablement

- Application developers require support
  - for Application Clients to locate, connect and switch to the most suitable Application Server on the Edge.
  - for Application Servers on the Edge to utilize the underlying 3GPP network to provide best possible services.
- The Edge Enabler Layer developed by SA6 (3GPP EDGEAPP) provides such capabilities with easy to integrate APIs – allowing Application Developers to focus better on application features.

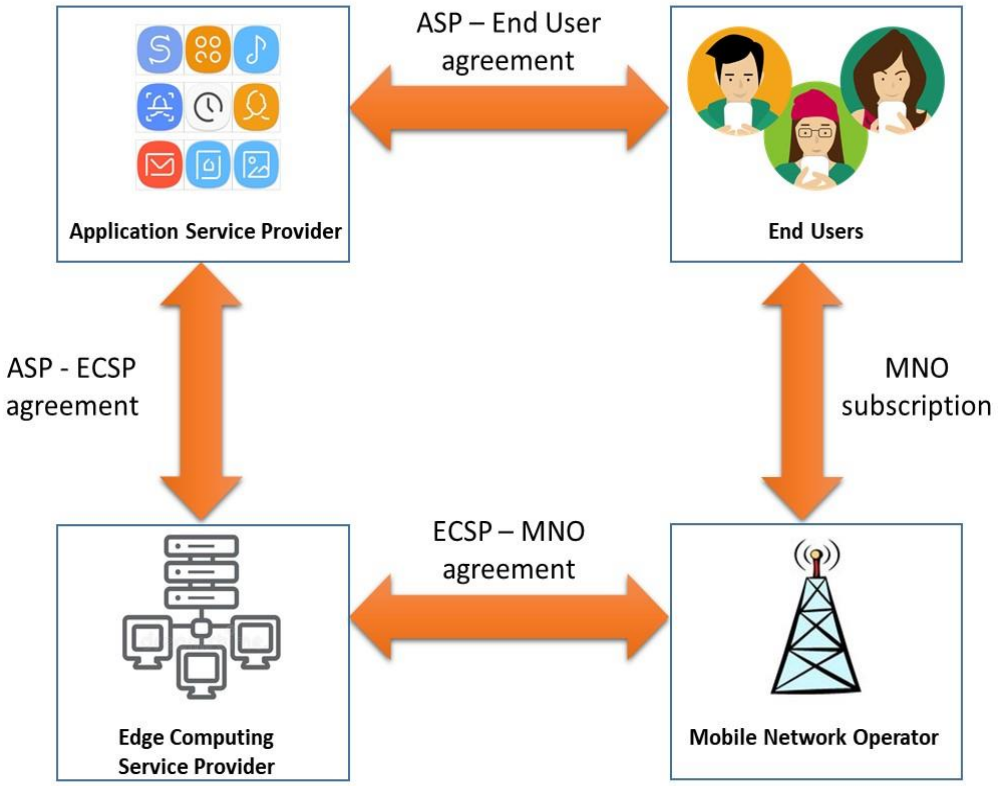


EDGEAPP – Overview

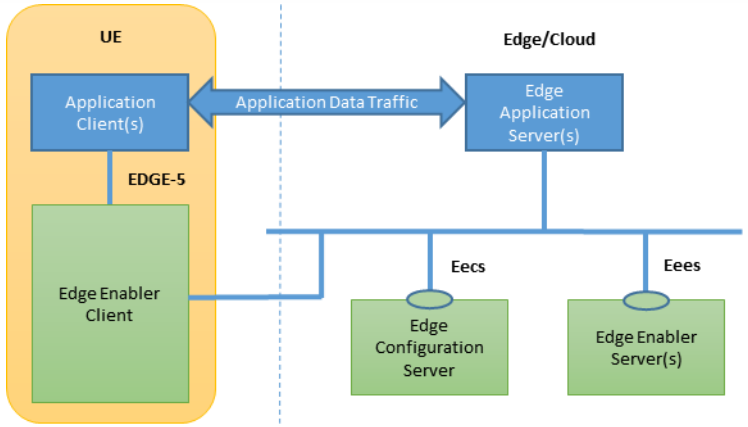
Architecture Principles

- **Application Portability**: Minimize changes to the Application Client logic and Edge Application Server compared to existing cloud environment
- **Service differentiation**: The MNO should be able to provide service differentiation (e.g. by enabling/disabling the Edge Computing features).
- **Flexible deployment**: The MNO should be able to support multiple ECSPs within its network. Also, the MNO should be able to selectively enable the service in a subarea of the MNO network.
- **Interworking with 3GPP network**: Provide access to 3GPP network capabilities (such as location service, QoS management, AF traffic influence) to the Edge Application Servers.

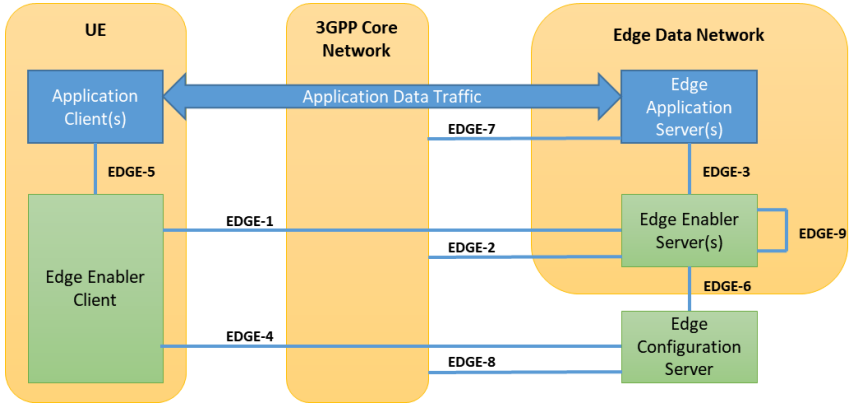
Business Relationships



Application Layer Architecture



Service Based Representation



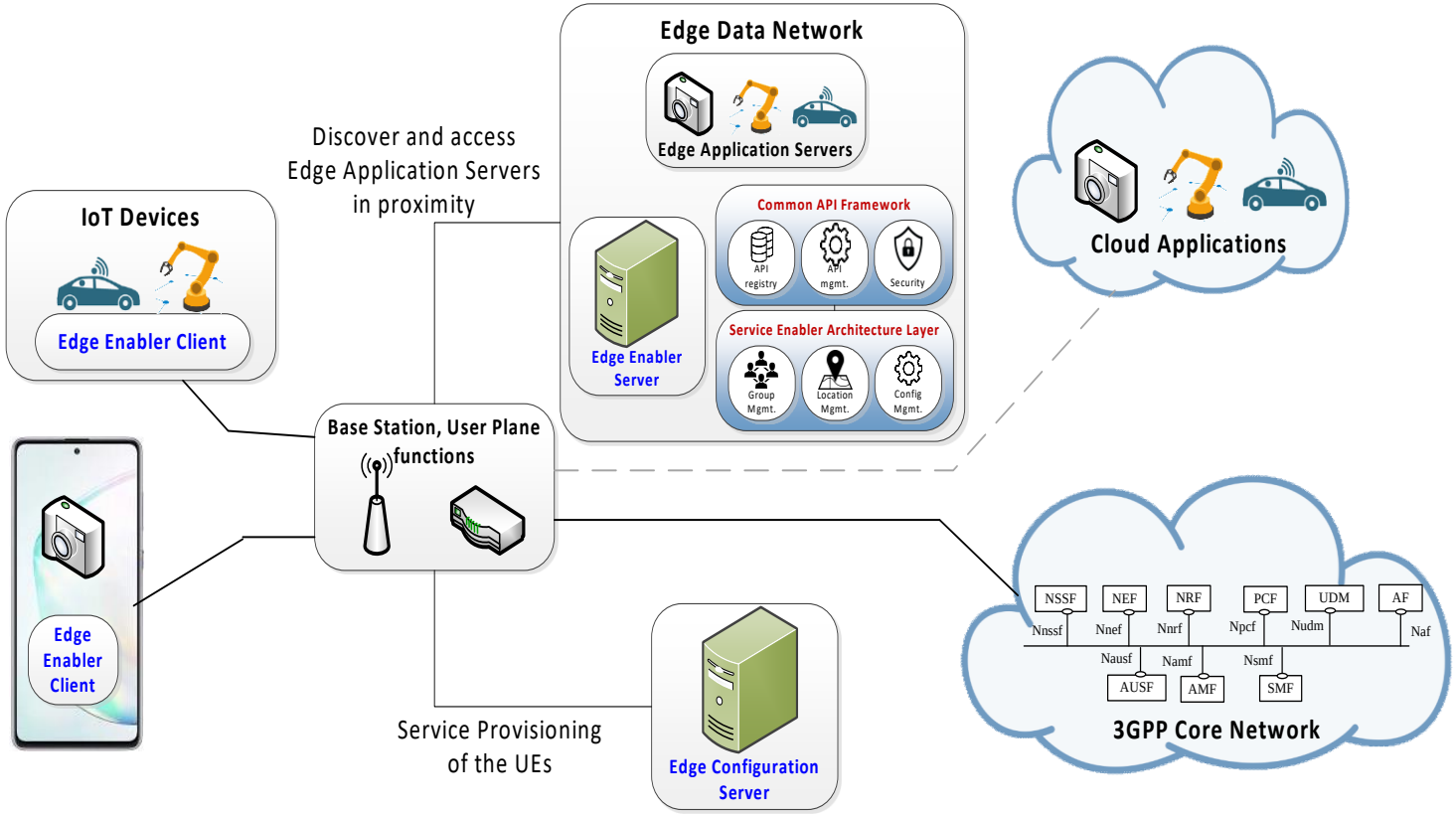
Reference-point Based Representation

- Edge Application Server(s) and the Edge Enabler Server are contained within the Edge Data Network .
- The Edge Configuration Server provides configurations related to the EES, including details of the Edge Data Network hosting the EES.
- The UE contains Application Client(s) and the Edge Enabler Client.
- The Edge Application Server(s), the Edge Enabler Server and the Edge Configuration Server may interact with the 3GPP Core Network.
- The Edge Enabler Client and Edge Application Server are only service consumers and do not provide any service

EDGEAPP – Key Features

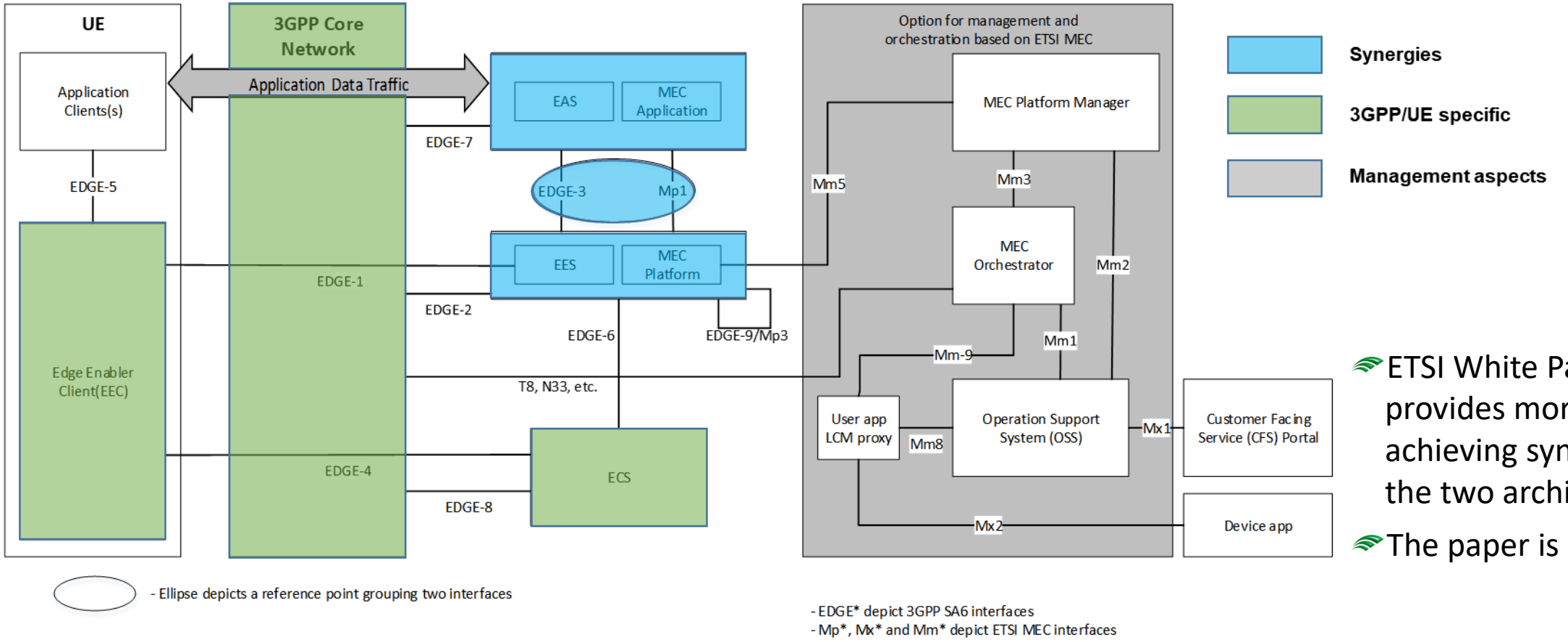
- **Service Provisioning**: Enabling a UE with an Edge Enabler Client to find and connect to available Edge Data Networks with appropriate NW configurations.
- **EAS Discovery**: Enable rich discovery of EAS (discovery beyond IP address; such as server capacity, operation characteristics, support for service continuity, service area, schedule etc.).
- **EES capability exposure**: Provide value added services to the Edge Application Servers as APIs exposed by the Edge Enabler Server (UE Location, UE ID, QoS, UP events, AC information, etc.)
- **Network capability exposure**: Provide Edge Application Servers and enabling layer with access to capability APIs exposed by the Core Network (NEF/SCEF, AF Traffic Influence)
- **Service Continuity**: Support Edge Application Server and the Application Clients in transfer of application context from one Edge Application Server to another, while minimizing service interruption. Also, maintain Edge Enabler Client's context across Edge Enabler Servers during mobility.
- **Security**: 3GPP credentials based authentication and authorization for Edge Computing services.

Support for CAPIF, SEAL and Verticals



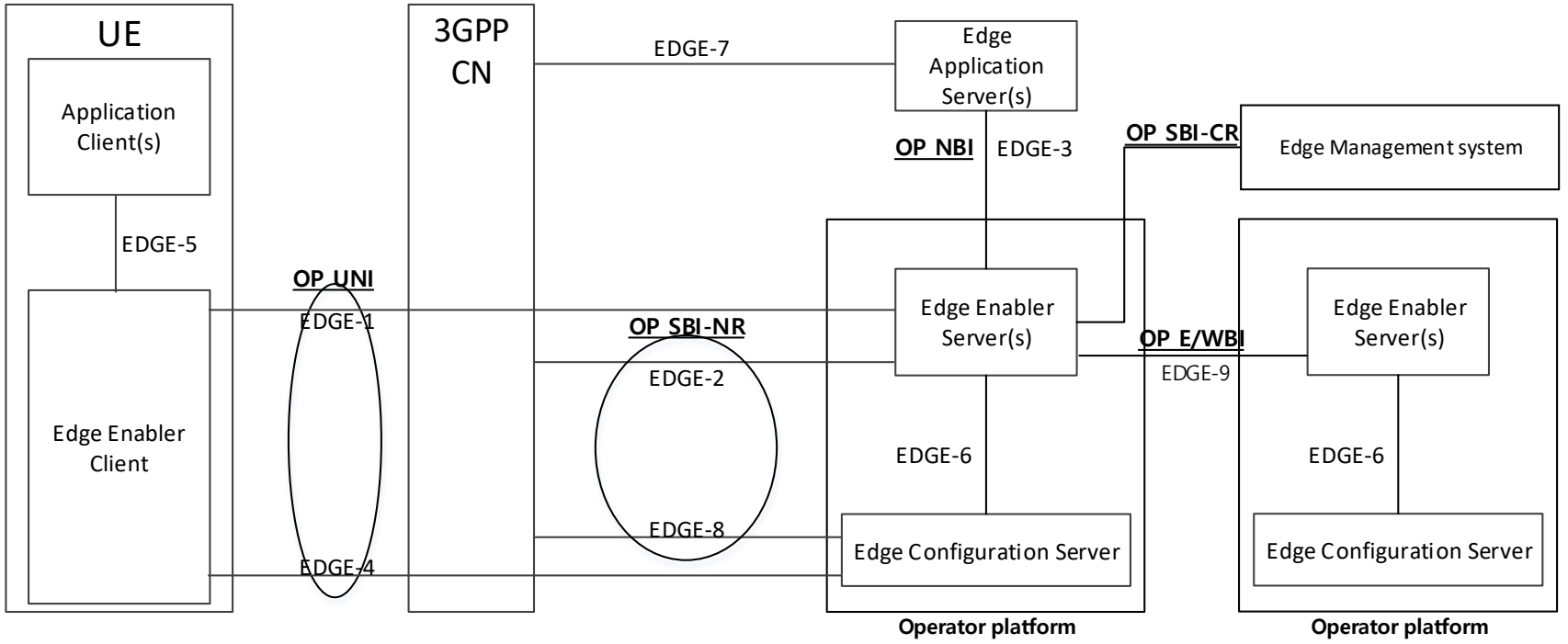
- TS 23.558 provides guidance for deploying vertical applications on the Edge, along with the support of 3GPP's Common API Framework (CAPIF) and Service Enabler Architecture Layer (SEAL).

Relationship with ETSI MEC



- ETSI White Paper #36 provides more details on achieving synergy between the two architectures.
- The paper is available here.

Relationship with GSMA OPG



- GSMA Whitepaper OPG.01: "Operator Platform: Telco Edge Proposal" is available here.

Conclusion

- **3GPP Rel-17:** Edge Computing is a major feature of Rel-17 (5G Phase 3)
- **Edge-native capabilities:** Enables native support to Edge computing within 3GPP Networks, including tight integration with core network, USIM-based authentication
- **Flexible Architecture**: Allows flexible deployment models and business relationships e.g. multiple Edge computing service providers
- **Advanced application features**: Application context relocation/service continuity, EES capability exposure/APIs, service-based architecture
- **Synergies with ETSI MEC and GSMA OPG**: Commonalities can be exploited on application enablement

More information: www.3gpp.org

Technical specification: 3GPP TS 23.558